

AMENDMENTS TO THE CLAIMS

Claims 1-9 (canceled without prejudice).

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10. (Allowed) A method for controlling a chemical-mechanical planarization (CMP) system, comprising the steps of:

providing an integrated model-based pressure-temperature-velocity-slurry flow control system comprising real-time mode identification, real-time gain estimation, and real-time control, said model comprising a plurality of component models of said CMP system;

said control system processing *in-situ* data from a plurality of real-time

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